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EXAMINER				
LIGHTFOOT, ELENA TSOY				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

Office Action Summary

Application No.

10/516,610

Applicant(s)

PASQUIER ET AL.

Examiner

ELENA Tsoy LIGHTFOOT

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-14, 16-37 and 39-43 is/are pending in the application.
- 4a) Of the above claim(s) 7, 11, 20, 30-37 and 39-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 8-10, 12-14, 16-19, 21-29, 42 and 43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 19, 2010 has been entered.

Response to Amendment

Amendment filed on January 19, 2010 has been entered. Claim 15 has been cancelled. Claims 1, 2, 4-14, 16-37, and 39-43 are pending in the application. Claims 7, 11, 20, 30-37, and 39-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims examined on the merits are 1, 2, 4-6, 8-10, 12-14, 16-19, 21-29, 42, and 43.

Specification

The disclosure is objected to because of the following informalities:

- (i) The abstract of the disclosure should not be part of the specification. See 37 CFR 1.52(b)(4).
- (ii) CROSS-REFERENCE TO RELATED APPLICATIONS in first lines of the specification is absent. See 37 CFR 1.78 and MPEP § 201.11.
- (iii) The title in the specification does not match the title in Bibliographic Data Sheet (BIB).

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The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) **CROSS-REFERENCE TO RELATED APPLICATIONS.**
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

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- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.
- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

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- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention claim 16 depends on cancelled claim 15. For examining purposes claim 16 was interpreted as being dependent on claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 24-26, 28, 29, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause (US 7488773).

Pause discloses a method for thermal insulation of cables or thermal protection of technical products (See column 3, lines 26-28) using a silicone rubber matrix containing finely-divided phase change materials such as crystalline alkyl hydrocarbons emulsified or dispersed in a cross-linked silicon rubber structure (See column 3, lines 16-26), the method comprising mixing up to 60 wt% (See column 4, lines 9-11) of the crystalline alkyl hydrocarbons (available in a liquid form after melting) into a liquid silicone rubber that is *paste-like flowable addition curing* two-component blend (as required by claim 12) (See column 3, lines 44-53; column 4, lines 41-42) comprising e.g.

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hydrogen-functional polysiloxane cross-linking agent (as required by claim 8) (See column 5, lines 45-47) and a platinum catalyst (as required by claim 14) (See column 3, lines 59-62), coating the mixture immediately onto a metal or plastic substrate (See column 4, lines 48-51), and curing the coating in situ (See column 6, lines 52-54) at room temperature or at a higher temperature of up to 75°C (See column 4, lines 39-43). The crystalline alkyl hydrocarbons are preferably $C_{16}H_{34}$ - $C_{21}H_{44}$ paraffins (See Table 1 column 2, lines 15-24), and may be byproducts of petroleum refining (See column 2, lines 21-23).

As to claims 24-26 and 43, the recitation "for insulating a flowline or a pipeline or singularity thereon" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

5. Claims 1, 2, 4, 5, 8, 10, 12-14, 17-19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause '773, as applied above, and further in view of Kilgour et al (US 6,262,170).

Pause, as applied above, further discloses that liquid silicon rubbers are available in different versions. Some of the standard types provide an exceptional mechanical strength and elasticity. There are liquid silicone rubbers available which cure in a very short period of times. Another liquid silicone rubber system possesses a very high flame resistance. They are all supplied ready for processing. One of the two components contains, for instance, a platinum catalyst and the other component a hydrogen-functional polysiloxane cross-linking agent. (See column 3, lines 54-63).

Pause fails to teach that a composition for thermal insulation further comprises a vinyl compound such as octadecene as a compatibilizing agent between the $C_{16}H_{34}$ - $C_{21}H_{44}$ crystalline alkyl hydrocarbons and the liquid silicone rubber such that the compatibilizing agent can be grafted onto the polysiloxanes during cross-linking (Claims 1, 10, 17, 19).

Kilgour et al teaches that a silicone elastomer formed by cross-linking hydrosilylation reaction (in the presence of platinum catalyst – See column 5, lines 14-15) of an alkenyl functional silicone compound, a silylhydride functional silicone compound; and one or more α , β -unsaturated alkenes exhibits hydrolytic stability, compatibility with organic media (See column 1, lines 20-55) such as C_{10} - C_{24} alkanes being liquid at $20^{\circ}C$ - $50^{\circ}C$ (See column 7, lines 14-17, 37-40), e.g. isododecane (See column 9, lines 47-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used one or more α , β -unsaturated alkenes (claimed compatibilizing agent) in a liquid silicone rubber in Pause in addition an alkenyl

functional silicone compound, a silylhydride functional silicone compound with the expectation of providing the desired hydrolytic stability, compatibility with C₁₆-C₂₁ alkanes, as taught by Kilgour et al, since Pause does not limit its teaching to particular liquid silicone rubbers.

As to claimed concentration limitations, Pause teaches that the crystalline alkyl hydrocarbons may be incorporated into the silicone rubber matrix in a weight portion of up to 60 wt. % based on the material's total weight. These quantities of phase change material ensure a substantial increase in thermal performance, and on the other side, the desired mechanical strength, flexibility and hardness characteristics of the silicone rubber material can also be maintained. See column 4, lines 9-19. Thus, the amount of phase change materials depend on desired thermal performance (i.e. the amount and *nature* of phase change materials) and mechanical strength of a matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant concentration parameters of phase change materials (including those of claimed invention) in Pause depending on desired thermal performance (i.e. the amount and *nature* of phase change materials) and mechanical strength of a matrix.

Moreover, it is well settled that concentration limitations are obvious absent a showing of criticality. *Akzo v. E.I. du Pont de Nemours* 1 USPQ 2d 1704 (Fed. Cir. 1987).

As to claim 13, Kilgour et al teaches that a silicone elastomer composition comprises 10-99.5 wt % of an alkenyl functional silicone compound and a silylhydride

functional silicone compound; and 0.1-90 wt % of one or more α , β -unsaturated alkenes (See column 2, lines 1-11).

As to claim 22, Pause teaches that in order to obtain a certain appearance, *color pigments* will be added. Otherwise the end product will be vary between transparent and opaque. See column 4, lines 24-25.

6. Claims 6, 9, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause '773 in view of Kilgour et al '170, as applied above, and further in view of Salyer (US 5,053,446).

Pause teaches a process for producing a silicone rubber material containing finely divided phase change materials, which absorb, store and release large quantities of heat during a phase transition, leads to a thermo-regulating effect. This thermo-regulating effect can be used to enhance the thermal performance characteristics and the thermal comfort sensation of a variety of products such as sport garments, diving suits, protective garments, blinds, building materials, medical products, automotive products, etc. See column 1, lines 19-31. More than 500 natural and synthetic phase change materials, which differ from one another in their phase change temperature ranges and their heat storage capacities are known (See column 1, lines 60-63). **U.S. Pat. No. 5,053,446** (to Salyer) reports a polyolefin matrix containing a phase change material and possesses enhanced thermal storage properties (See column 3, lines 1-10). However, applications of these containment structures have shown that they are not providing a durable containment and the phase change material often disappears while in its liquid stage (See column 3, lines 11-14). Pause teaches that advantageously

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silicone rubber materials may be used may be as a matrix for finely divided phase change materials such as crystalline alkyl hydrocarbons or salt hydrates (See column 3, lines 18-20). Pause further teaches that, in principle, all phase change materials with phase transition temperatures in the required temperature ranges, e.g. in the range of 20°C-100°C depending on application can be used for incorporation into the silicone rubber matrix (See column 3, line 65 to column 4, line 8).

Pause fails to teach that phase change materials include slightly branched alkyl chain alkylaromatics or alkylcycloalkanes, fatty alcohols and fatty acids.

U.S. Pat. No. 5,053,446 to Salyer teaches that crystalline organic compounds such as crystalline alkyl hydrocarbons, crystalline **fatty acids**, crystalline fatty acid esters, crystalline alicyclic hydrocarbons, and crystalline aromatic hydrocarbons which melt and freeze within the desired thermal transfer temperature range (e.g., 0 to 80°C) (See column 9, lines 12-23) may be used in an amount of 40-80 wt% (See column 8, lines 64-67) as phase change materials in **crosslinked** polyolefin matrix (See column 2, lines 35-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used crystalline fatty acids in Pause instead of crystalline alkyl hydrocarbons since Salyer teaches that crystalline organic compounds such as crystalline alkyl hydrocarbons, crystalline **fatty acids**, crystalline fatty acid esters, crystalline alicyclic hydrocarbons, and crystalline aromatic hydrocarbons as phase change materials in a **crosslinked** polymer matrix.

As to claimed concentration limitations, it is well settled that concentration limitations are obvious absent a showing of criticality. *Akzo v. E.I. du Pont de Nemours* 1 USPQ 2d 1704 (Fed. Cir. 1987).

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pause '773 in view of Kilgour et al '170, as applied above, further in view of Hupfield (US 7019098).

Pause '773 in view of Kilgour et al '170 fails to teach that antibacterial agents are added to an insulating composition.

Hupfield teaches that antibacterial agents such as chlorohexadiene gluconate and antifungal agents such as miconazole nitrate (See column 5, lines 66-67) may be added to a composition for insulation materials for electric cables (See column 6, lines 25-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added antibacterial agents to an insulating composition of Pause '773 in view of Kilgour et al '170.

8. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause '773 in view of Kilgour et al '170, as applied above, further in view of Craubner (US 4348243).

Pause '773 in view of Kilgour et al '170 fails to teach that antibacterial agents and hollow glass microspheres are added to an insulating composition.

Craubner teaches that an insulating composition may contain *biocides* (See column 3, line 8) and *hollow glass microspheres* to provide thermal and flame resistance (See column 2, lines 32-39). Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to have added antibacterial agents and hollow glass microspheres to an insulating composition of Pause '773 in view of Kilgour et al '170 with the expectation of providing the desired antibacterial properties and thermal and flame resistance, as taught by Craubner.

9. Claims 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause '773, as applied above, further in view of Vergouw (US 4941773).

Pause '773 fails to teach that: a flowline or a pipeline or a singularity on a flowline or pipeline is insulated (Claim 24, 26, 28) using an external jacket (Claim 27).

As to claim 24-27, Vergouw teaches that power cables may be thermally insulated by placing the power cables into pipeline 4 that together with other pipelines 2 and 3 for e.g. oil or gas are placed into a carrier pipe 1 (claimed external jacket), lowering the carrier pipe to the seabed (See column 3, lines 60-63), filling the space around the lines 2-4 with an insulation composition by varying pressure (See column 4, lines 39-40), and gelling the composition (See FIGS. 1 and 2; column 2, lines 53-64; column 4, lines 3-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have thermally insulated electric cables of the cited prior art by placing them into a carrier pipe together with other pipelines to be insulated, lowering the carrier pipe to the seabed, filling the carrier pipe with an insulation composition by varying pressure, and gelling the composition, as taught by Vergouw.

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 2, 4-6, 8-10, 12-14, 16-19, and 21-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1792

January 28, 2010

/Elena Tsoy Lightfoot/